

# Sudbury Neutrino Observatory – Physics Extraction in SNO’s First Phase

*K.T. Lesko, Y.D. Chan, X. Chen, A. Marino, E.B. Norman, Y. Opachich, C.E. Okada, A.W.P. Poon, and R.G. Stokstad*

The Sudbury Neutrino Observatory [1,2] (SNO) is a next-generation water-Cerenkov solar neutrino detector operating 2020 *m* underground near Sudbury Ontario Canada in an active nickel mine owned and operated by INCO Ltd. The SNO collaboration consists of ~75 physicists from eleven institutions in Canada, Great Britain, and the United States. SNO has been operating in a stable neutrino detection mode since October 1999, with the completion the significant construction and commissioning activities.

We have collected data in pure D<sub>2</sub>O for more than a calendar year and are actively analyzing those data for Charged Current, Elastic Scattering, neutron, and background signals. The LBL group is actively involved in the data analysis, detector calibration, detector operations, and Monte Carlo simulations within the collaboration. The details of our participation in SNO are presented in the subsequent contributions of this report. With our data analysis efforts and Monte Carlo simulations we have made extensive use of the NSERC computer resources at LBNL.

Our group founded, organizes and leads the efforts of the West Coast Analysis Alliance formed of LBNL, University of Washington, LANL, and University of British Columbia.

## Footnotes and References

1. G. Ewan, *et al.*, Sudbury Neutrino Observatory Proposal, SNO 87-12 (1987).
2. J. Boger, *et al.*, The Sudbury Neutrino Observatory, *NIM A449* (2000).
3. A. McDonald, The Sudbury Neutrino Observatory, in proceedings to be published.  
<http://www.nrc.ca/confserv/nu2000>

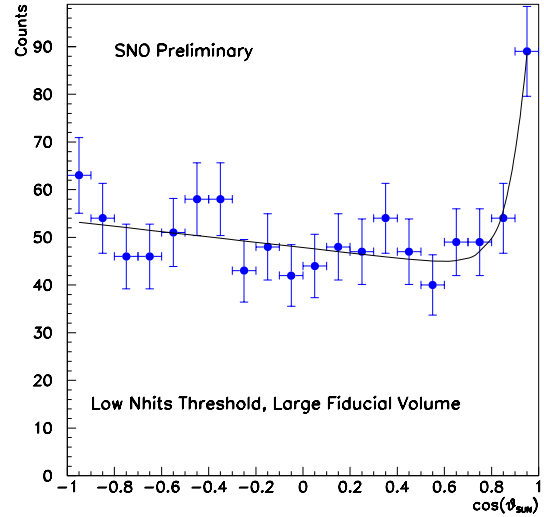


Figure 1. SNO’s Elastic Scattering neutrino presented at Neutrino 2000[3].

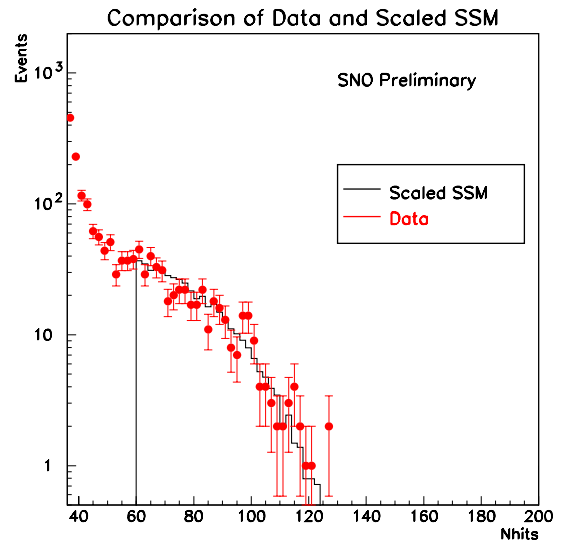


Figure 2. SNO’s neutrino “nhits” spectrum presented at Neutrino 2000.[3]